An alternative (to) reality

Conference or Workshop Item

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(This is a full copy of the published paper in The Proceedings of the Researching Leanring in Immersive Virtual Enviornments Conference, 21-22 September 2011, The Open University, UK (ISBN 978-1-78007-320-0) - pages 113-121. Available at http://www8.open.ac.uk/research-conferences/relive11/node/276)

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Keywords: Virtual Environments, Virtual Learning Environments, Alternative Reality, perception of space, phenomenology, conception

Abstract

This paper proposes that the generation of successful virtual environments relies on better understanding of how we conceive virtual and physical realities in our consciousness. In particular, to recognise that our conception *of these realities is more importance than our* perception *of them. The failure and success of certain virtual environments are explained as the failure and success of the application of these phenomena.*

Firstly, making use of philosophical phenomenology, our understanding of physical reality is considered in terms of phenomenal conception and it is shown that objective perception is only one part of our relationship to physical environments. Secondly, the other point of view is considered and virtual environments are argued to be just as valid phenomenal conceptions as their physical counterparts.

Finally, the translation of phenomenal conceptions between realities is considered, providing a different way of considering how we think about and design all types of reality. Several interesting potential avenues of investigation are identified and examples of the emergence of this approach are presented.

1 Introduction

Virtual Reality has become a recognisable phrase often referring to environments generated and hosted electronically, but the word virtual leads to natural conclusions about the nature of these 'places'. Virtual suggests simulated, copied, mimicked -

that there is an a priori reality that is the thing of value and that the virtual version of it must therefore be nothing more than a simulacrum.

Virtual Environments (VEs) come in a variety of forms, from collections of information that generate a social body of knowledge (such as a Virtual Learning Environments (VLEs) or Wikipedia) to Multi-User Virtual Environments (MUVEs), such as Second Life (SL) where a computer generated 3D graphical representation of an environment is provided, within which a user can navigate and interact with the environment and other users.

The word virtual in all of these terms is the starting point for this paper and it is suggested that, by using it, we immediately frame the environment in terms of a duality – that there is a 'real' world and the virtual, and that the latter is in some way a copy or simulacrum of the other.

The tendency to use VEs to simply copy physical reality is well documented (Addison & O'Hare, 2008; Gardner, Scott, & Horan, 2008; Grove & Steventon, 2008). There is also evidence to suggest that we do not use this new technology to its full potential (Hobbs, Gordon, & Brown, 2006; Hollins & Robbins, 2008).

It will be argued that copying reality and unfulfilled potential are symptoms of the same thing – that the essential part of how we conceive of any environment is not properly recognised. It is proposed that this essence is the phenomenal conception we generate from an environment and not simply the perception or cognition that arises from it.

Let us begin by posing the question 'Why do we use gravity in virtual environments?' This apparently simple question may seem a strange starting point and, with a little thought, may also seem to be answered quite simply. But there is potentially another way of looking at this question, which also provides another way of looking at all realities, whether virtual or physical.

2 Physical reality as phenomenal conceptions

2.1 A brief introduction to phenomenology

Bachelard (1994), in The Poetics of Space, describes architecture in a phenomenological way, providing us with a vivid alternative view of how we conceive the physical world around us. Rather than simply viewing our environment as a series of (objective) objects, we are constantly interacting with it – interpreting, filtering, or applying value. The ultimate idea we have of reality is very different to any objective measurement we may make of it. Bachelard presents a phenomenological view of architecture (and of reality itself).

Philosophical phenomenology, as originally formalised by Edmund Husserl (Honderich, 1995), considers the difference between the thing perceived in our environment and the thing in the mind. More importantly, we must realise that the perception of anything is necessarily subjective and relies on both the thing itself and our cognitive interaction with it.

Heidegger develops this in greater detail with respect to our interactions between perception and cognition. We may see a thing, but once we have interacted with it, we have a different relationship with it. The interaction in itself has developed our idea of the perceived thing and this in turn affects our relationship to it. Both Husserl

and Heidegger rely on a duality of (at least) perception and cognition – i.e. that the perception of a thing occurs by a consciousness and becomes an idea in the mind.

But it was Merleau-Ponty who synthesised this duality to suggest that neither should be considered *a priori* (Merleau-Ponty, 1962). For Merleau-Ponty, both must be considered as a single embodied entity – our perception of a thing and our cognition of it are at once the same thing, separable only by definition (if at all). When we touch something, we actively conceive of it as we interact with it.

It is this embodied phenomenology that is of greatest interest in this paper, although it is still perfectly possible to apply these arguments to a dualist position.

This is a (very) brief description of the main points of philosophical phenomenology. Fingelkurts et al. (2009) is worth reading for an expanded (and much better) summary.

2.2 Architecture as phenomena

Returning to Bachelard, he provides the examples of cellar and attic as two very different conceptions of place in a house :

"Verticality is ensured by the polarity of cellar and attic, the marks of which are so deep that, in a way, they open up two very different perspectives for a phenomenology of the imagination." (Bachelard, 1994)

Bachelard is suggesting that there is something very different in our conception of going up to an attic when compared to going down to the cellar. We do not only perceive the attic and cellar, we react to them as very different objects with different values attached. For Bachelard, the phenomena of attic and cellar are the 'real' events – not the physical objects themselves.

All architecture can be considered in this way, from the feeling of entering a building to how we react to a particular shape of room. The conception we have of space generated by built form is where the architecture happens. As Clark & Maher (2001) suggest, Architects create space – people bring Place – and it is Place that is argued to be most important part in terms of human interaction and understanding. In architecture, this is sometimes referred to as *genus loci* (Norberg-Schulz, 1980) and the meaning that Place can embody in architecture has been discussed and used by many architects throughout history.

Aside from the philosophical argument, the fact that we respond cognitively to buildings is a well documented phenomenon (see Anthes (2009) for some interesting examples) – particularly when a physical and cognitive map do not align (Carlson, Hölscher, Shipley, & Dalton, 2010). What is important in all these examples is the requirement for people to generate the meaning.

It is worth noting here that this is perhaps one of the reasons why superficial copying of physical reality does not always translate as expected to VEs. It is possible to copy the elements but if the conception of these is not translated then a different phenomenology can occur – the triggers of the 'value' of a physical place must be translated as well, and these triggers are not always the simple physical elements.

2.3 Reality as phenomena

It is also possible to extend this idea to events that may not seem to be traditional forms of architecture. In fact, it is argued that reality is effectively 'virtual' when considered from the point of phenomenology. If we realise that the thing conceived is not the same as the thing perceived (for dualists) or that we require conception (for embodied theorists) then we must accept that truly objective reality cannot exist (see Fingelkurts et al. (2009) for an interesting view on this).

This is not simply a philosophical or phenomenological construction – the difference between the objectively measured reality and our perception of it is well documented. A simple example is the finding that we do not see colour the way it exits physically (by objective measurement) and that it can be influenced by cultural conditioning (Lotto, 2004). So we must consider that, if we cannot even agree on seeing red, our idea of physical reality is at least as much an idea as it is an objective reality. In short, physical reality is nothing more than virtual anyway.

3 Virtual Environments, information and education as phenomenal conceptions

3.1 Virtual Environments s as phenomena

We now consider our relationship with VEs and argue that similar conceptions of these 'places' are formed in our minds. This can be demonstrated directly from the arguments above. We copy physical reality in VEs since we understand them to be a translation between physical and virtual and, generally, we observe that many of the conceptions formed in physical reality can also be formed in VEs. For example, we generate physical 'rules' to maintain analogies - we make sure avatars cannot go through walls, we have gravity, we make use of spatial arrangements that make sense in terms of physical reality.

We are, in effect, providing conceptual environments – ones that makes sense to us in terms of our interaction with them. The simple physical elements of a VE can come together to form something that is greater than the sum of the parts and a sense of place can be achieved (Doyle, 2008). Moreover, in an educational context, this sense of place seems to be an important aspect of the richness required in a MUVE (Clark & Maher, 2001).

MUVEs can clearly allow social conceptions to exist, with communities forming and social interaction taking place (see Twining & Footring (2008) for one of many examples of this). Even negative aspects of any socially organised system can be found – see (Carr, Oliver, & Burn, 2008; de Jong-Derrington & and Homewood, 2008; Minocha & Tungle, 2008, for several examples.

None of this would be possible without a conception of the MUVE – something that is greater than simple perception of the objective reality being presented is only possible when it is conceived.

3.2 Information as phenomena

It is now argued that information can generate a conception. On the simple level we could argue this from the fact that perception *is* information and this will automatically lead to conceptions of that information being formed. It is extremely difficult to

conceive of data in isolation, without giving it meaning. To say that a thing is ‘two’ makes very little sense unless we apply that data – i.e. that we have two things, or that two things relate. In each case we generate a relationship to construct a conception of the information and its meaning. Tim Berners-Lee refers to ‘the information space’ (Berners-Lee, 1999), clearly indicating what we know intuitively – data has value only when a conception of it is created to give meaning and sense (in this case, a spatial/relational meaning).

For example, we naturally represent a value’s magnitude in geometry by a line ‘rising’ or a data point becoming ‘larger’. This might seem a truism, and in many ways it is – our ‘natural’ understanding of lower and higher will automatically be applied in an analogous way to anything we conceive of as having magnitude. But we need to recognise how many other things we apply the conception of lower and higher to and recognise this as a direct analogy to Bachelard’s going ‘up’ to the attic and ‘down’ to the cellar. The information itself is given meaning by our conception of it.

In fact there is a growing tradition of interpreting abstract data in a visual or phenomenal way. Rosling successfully demonstrates how we can re-interpret data when we look at it interactively (Ted Talks, 2006). We Feel Fine (Harris & Kamvar, unknown), takes blog postings starting with ‘I/we feel…’ and visualises them, providing the user with an interactive space to experiment with this data. In doing so, a user will develop their conception of the data and ultimately the meaning of it from this conception.

This meaning and conception is important. Stories, for example, are nothing more than information, yet they create very vivid conceptions in our minds. Some of the earliest human communication was representative and descriptive. A cave painting of an animal is clearly not the animal itself; rather, it relies on the viewer conceiving the representation being made. All storytelling relies on a conception of the information being presented and we are asked by authors to imagine, project or immerse ourselves in this conception. Modern storytelling continues this tradition but it relies on the same principle. Dreams of Black (Milk, 2010) presents an HTML5 example of modern storytelling where an interactive VE and traditional storytelling combine. And what of Shakespeare in Second Life (Chafer & Childs, 2008) – is the story or the medium the conception being created?

It is also possible to imagine other information repositories as ‘places’ of information. Peachey (2008) refers to Oldenburg’s ‘*third places’* in MUVEs, and cites Glogowsky as suggesting that an online blogging community can also be viewed as such a ‘place’. Here, information is suggested to generate some conception that is beyond the mere interpretation of the information itself and many educators will be aware of the need to generate an ‘atmosphere’ or ‘momentum’ in a VLE forum. If information in this context is not a conception, then how is it that we can even conceive of an ‘atmosphere’ when we refer to a series of letters and colours in a forum?

3.3 Education as phenomena

Education can be argued to rely entirely on the generation of conceptions. In fact, information transfer is arguably the least part of education. Problem Based Learning, Constructivist Learning or Personal Learning Environments are all examples of approaches to education that focus on the generation of conceptions in the mind of

the student. The transfer of information is of a lower priority to how that information may be used or how meaning may be derived from it – and there is some evidence that VEs are suitable environments for this (see 4.1 below)

It is worth noting that this is certainly not limited to VLEs or MUVEs. We can all reflect on physical learning events that have stayed with us throughout our lives and might recall a specific teacher at school, a particular subject (or even concept) and certainly the sense of place. In each of these memorable cases, it is argued that the phenomenon is the thing remembered. Ramondt (2008) discusses the 'gift of drama' in education and how a teacher can generate conceptions in learning rather than simply presenting information.

There is something about doing that is important – that goes beyond being a passive observer. The direct analogy in education is that, if we seek to develop more than the simple transfer of information, then we need to provide more than data. The creation of conception requires richer elements of learning. The conception of physical reality, VEs or even information relies on interaction and this does not have to be direct mimicry physical reality. As Hollins & Robbins (2008) state, *"After all,* all *computer use is interactive."*

4 Synthesis of physical and virtual

If we accept that we can consider physical reality, VEs, information and education in a phenomenological way, then we can translate conceptions between these environments'. Moreover it allows us to start with and focus on the phenomena or conceptions themselves – but we do need to understand the difficulties in doing so.

4.1 The barriers to phenomenal design

There are good reasons why we do not just jump straight into an abstract reality made from conceptions. Design for VLEs and MUVEs require just as much attention as their physical counterparts and in many cases these considerations are more important to ensure a reasonable translation of the design intent.

We know that students require induction to understand how to relate to MUVEs (Addison & O'Hare, 2008; Trinder, 2008; Truelove & Hibbert, 2008). Similarly, the challenges facing MUVE socialisation design are known (Minocha & Tungle, 2008), and simply translating 'rules' from physical reality to VEs can be difficult (Barker, Haik, & Bennett, 2008). But in each of these cited examples, evidence is also presented of how these problems can be managed or overcome. Once a conceptual framework is embedded there are genuine benefits to be gained and people can adapt to these new environments.

In fact, as Carr et al. (2008) notes:

"A degree of disorientation or ambiguity might be productive in one learning context yet completely counter-productive in another."

And

"The 'anything goes' nature of SL meant that our students took little for granted. For example, they questioned the various pedagogic decisions that had been made."

Moreover, it is often the challenge of the new environment that is the reason for it being created. In computer gaming, there are several examples of entire games generated around radical shifts in conceptions of physical reality. Portal (Valve Corporation, 2007), The Company of Myself (Piilonin, unknown), and Shift (Armor Games, 2008), are all examples that not only require the player to adapt to a different conception of the reality they are presented with, but require the player to actively engage with that conception in order to progress the game. In effect, the method and mode are synthesised into a phenomenon – an embodied event of conception through interaction.

But we do need to attempt these challenges for several reasons :

- The formation of these places can be emergent (Minocha & Tungle, 2008) and this emergence is already occurring. We naturally design phenomena but often at an instinctual level without understanding or recognising it explicitly. Being able to consciously design for the emergence of phenomena, or at least being aware of this mechanism, is required. The failure of physical copies of campuses in MUVEs is an example of the failure to translate the phenomena of those campuses.
- Designers are working beyond their 'expertise' and this, rather than being a negative outcome, is leading to some genuinely excellent inter-disciplinary solutions. This knowledge needs to be recognised and shared with further lines of design investigation followed. In fact the potential this may offer may be only now truly emerging.
- If we aim for student centred and adaptive pedagogies, then we must consider the affordances of conception based (MU)VEs. Problem Based Learning has been demonstrated to be possible (Brown, Gordon, & Hobbs, 2008; Burden et al., 2008; Burton & Martin, 2008). Constructivist Learning may operate more effectively in an MUVE (Grove & Steventon, 2008). Atwell's Personal Learning Environments (Attwell, 2007) are effectively conceptions of learning places.

There is also a self-referencing argument to be made with respect to educational (MU)VEs. It is all very well starting with pedagogy but if we do not know what is possible with a new mode we have no way of realising how a pedagogy can be applied (or even affected) by its use. A very good point is made by one of the educators interviewed in Minocha (2010) :

"'I find the political correctness of 'pedagogy must lead technology' to be rather sterile. We need to be more interactionist about this. The teachers don't know what is possible [in SL], and the technologists don't know what the teachers might want to achieve if they could…'"

Perhaps our design of these places needs to learn from the duality of early phenomenology – that both should collapse to a single conception of mode and pedagogy. After all, if we acknowledge that the creation of conception requires interaction (e.g. application of theory and practice), then we require an embodied pedagogy that does not assume a simple cause and effect model of education – we require an emergent pedagogy where the method *is* the teaching and vice versa.

4.2 Knowledge and concept transfer

It is now argued that phenomena or conceptions can translate directly between environments, allowing exciting opportunities for designers.

For example, architectural design in education can be used in VEs and knowledge from educational VEs can be used in physical architecture. The ceiling height in physical schools has been demonstrated to have a measurable effect on creativity performance (Anthes, 2009). Most notably, it is not the measurable height that generates this phenomenon – it is the conception of the space. In natural language, the more 'open' it feels, the more 'open' our minds might become.

Now consider the finding in Sweeney (2008), where the removal of the ceiling/roof led to claustrophobia. Here, it was considered that the space still led to a feeling of enclosure, thought to be as result of the surrounding, windowless walls. There are obvious parallels and lessons to be learned by both physical and virtual architects in these examples and this may represent the smallest example of future study.

But we do need to remember what is common between these things – we need to recognise that it is the conception formed in our minds that is the thing of relevance. The difference between physical and virtual is typically made by considering only perception and this is insufficient to understand the whole phenomenon.

It is also worth noting that the ceiling example is as much a conceptual transfer of knowledge. It may work at a practical level (i.e. there may appear to be a cause and effect that we can put to practical use) but understanding the phenomenon allows us to extend its use to other knowledge domains. We now have the knowledge of how to affect the phenomenon of 'openness' and this is a very powerful knowledge to have.

We must realise, too, the potential of transfer from virtual to physical. Why not work on a real world version of the wonderful extending table (de Jong-Derrington & and Homewood, 2008)? We know that desk configurations have an effect on attention and work methods in schools, so how can we enable this knowledge in physical and virtual environments? What other wonderful (MU)VE ideas can we turn into reality?

4.3 Start with the conception

What begins to emerge from the above is that it is the conceptions we form (the phenomena) that are the things of interest – not the environment, whether virtual or physical. Can we, therefore, start designing with the conception we wish to convey rather than the object(s)?

Two brief examples of this happening already are now presented from design practice and education.

Building information modelling

In the building design and construction industry, Building Information Modelling (BIM), the process of creating a virtual information model of a building before it is constructed and is changing the way designers work together (NBS, 2011). BIM is effectively a MUVE and all stakeholders collaboratively place information - from the

user's brief to the designer's model and right through to a final virtual building that can be used to manage the physical building itself.

The adoption of BIM in construction disciplines is rapidly increasing and it may represent a significant shift in the approach and attitude to the massive task of designing an object as complex as a modern building (Sheldon, 2009). It is this paradigm shift that is of interest here since it requires all stakeholders to share a conception of the process of design and the object of design as a single entity. The duality between the process and object designed becomes embodied to allow both to align much more naturally. As designers we seek to embody the idea and the thing together – not as separate entities.

U101 Design Thinking

U101 Design Thinking: Creativity for the 21st Century (The Open University, 2011) is the Open University's entry-level course for the Design and Innovation Degree. It was designed around the ides of a virtual atelier, a design studio 'space' where social, peer-to-peer student collaboration would be possible and form one of the main teaching and learning objectives. To achieve this, the module makes use of a variety of media in a blended VLE – from text, audio, and video information through to forums, shared online portfolios, and asynchronous whiteboard communication environments (for further details see Lloyd (2011)).

It is the idea behind the course that is of interest here and it is suggested that the conception of design as a process (a dynamic activity) informed the entire design of the course as well. Students are expected to engage with the idea of design as process of thought and action and this is the essence of Design Thinking (Wikipedia, 2011). The duality between process and object is embodied as a single pedagogy and students are engaging with a conception and not simply a set of instructions or learning tasks.

4.4 Conception Considerations

If we start with the conception (or phenomenon), there are several things we must bear in mind.

Phenomena. It is phenomena that are the essence of our relationship to any form of reality. When we make use of any information, the perceptual parts of it represent only a part of the conception we form in our minds. These conceptions are transferrable, allowing a single conception to exist in a wide variety of media and this offers an incredible variety of opportunities for the sharing of knowledge, ideas and methods. Moreover, we should not restrict our learning in only one direction – lessons in virtual design can equally apply in physical design.

Interaction. It is the interaction with (and within) these (MU)VEs that is the driver (or enabler) for the conception to be maintained. All participants are able to affect their environment and the sharing of consequence of change is a large part of the process itself. The interaction with (and within) (MU)VEs is just as important as it is in physical reality and this must be offered to users of these environments. Interaction is not simply pressing buttons or reading notes – it is the active engagement with phenomena.

Collaboration. These conceptions make use of social phenomena and in particular collective interactions. The conception is a shared entity embodied not in the (MU)VE itself, but in the minds of the participants. Differences of conception will arise but these are embodied in the shared event, creating the potential for interaction. Expert and novice share the same space. Not only will novices learn expertise but the expert (with the right attitude) can realise that expertise is not the only way to go about their specialism.

Emergence. The conception is necessarily emergent and dynamic. People are different and are constantly changing. This is an important lesson for (MU)VE designers – the environment you create does not 'belong' to you and you cannot easily predict how it will be conceived by users. A simple lesson from physical design can be learned here: the spaces that allow the emergence of activity (especially those not imagined by the designer) can often be the most successful.

Design Thinking. To design effectively in (MU)VEs (and in physical reality too) we have to recognise the above characteristics and work with and within them. This is very different to a traditional 'expert' based design method. As Lloyd (2011) infers, an architect may design space very well, but this is an 'architectural' solution emerging from that specific discipline. If it does not recognise the dynamic, interactive and emergent capabilities of (MU)VEs then it will not enable 'Place'. Design of (MU)VEs requires the consideration of the phenomena being generated and this calls for design thinking, not specialist design.

5 Conclusion

When we consider reality in terms of phenomena, we realise that the conception of reality in the mind is potentially more important than any 'objective' measurement of it. Reality, as an independent object, becomes far less important than the embodied understanding of it we each have, with the values we attach to it individually and socially. A similar observation can be made when we consider VEs, MUVEs, VLEs and even information itself. In all forms of reality it is the conception we have that is the thing of importance.

Making use of conception as the starting point for design provides us with an alternative approach and process to design in general. Specialist design is only relevant as part of a holistic design thinking approach and it is these overall conceptual (and collaborative) attitudes that will see genuine alternative reality emerge.

We can finally return to the question 'Why do we use artificial gravity in MUVEs?' It is proposed that we do this, not to provide a simulacrum of the physical world; rather it is to provide a phenomenon – something we can interact with to provide us with a conception of reality. Gravity may help us translate physical reality into a MUVE but this is only a small part of what it really does. Without gravity in a MUVE, there is no up and down but, more importantly, Bachelard's 'attic' and 'cellar' would not exist - one of the central pillars of social storytelling would be removed and we would have no reference for the meaning of up or down in any of their many senses (except, of course, the ones we bring with us).

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